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(54) A Medium and a Composition Containing Said Medium along with a Stabilized Cosmetic or Skin Care Agent

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Description

The present invention relates to a medium which is intended to provide a stable medium, albeit without surface-active agents and stabilizers, with said medium being suitable for use in a composition containing an agent which is sensitive to external factors and/or to water, and it likewise pertains to use of said composition for cosmetic and/or dermatological treatments for the skin, including the scalp.

Prior art includes introduction of agents within cosmetic and/or skin care compositions for the purpose of providing specific treatments for the skin, in order to counteract drying, aging, or discoloration of the skin, for example, in order to treat acne or certain skin disorders (eczema, psoriasis), in order to counteract excessive stress caused by weight, in order to promote restructuring of the skin or renewal of skin cells, or likewise for coloring the skin.

For example, ascorbic acid (or vitamin C) is known to stimulate growth of connective tissue, and especially growth of collagen. It also allows strengthening of the defenses of cutaneous tissue against external sources of harm, such as ultraviolet radiation or pollution. It is likewise used for removing spots and discoloration, as well as for promoting healing of the skin.

Prior art also includes application of retinol or Vitamin A, especially for counteracting aging of the skin and certain skin disorders, such as acne, or problems in terms of keratinization or healing.

In addition, prior art has included knowledge for many years with respect to the role of dihydroxyacetone in artificially coloring skin (Bobin et al., J. Soc. Cosmet. Chem., 1984, 35, pages 265-72). Dihydroxyacetone reacts with amino acids which are naturally present within the lipid coating of the stratum corneum, and it forms melanoids by means of a Maillard reaction (L.C. Maillard, C.R. Acad. Sci., 1912, 154, 66-68). Application of dihydroxyacetone to skin therefore allows the appearance of tanned skin to be provided, without causing the disadvantages (burning, risks of cancer) which are encountered during exposure to the sun.

Furthermore, prior art also includes introduction of enzymes within cosmetic compositions, especially proteases and lipases which are used on account of their proteolytic and lipolytic properties. These enzymes are often in demand within the cosmetic sector on account of their smoothing and cleansing capabilities, and their suitability for removing dead cells from the skin.

Unfortunately, certain agents and especially those which have been cited heretofore are unstable on account of sensitivity to external factors, such as light, heat, or the presence of oxygen or air, even when it is present within water. The stability of dihydroxyacetone, vitamin C, vitamin A, or enzymes included in a given composition is therefore entirely relative: these agents within compositions deteriorate over the course of time.

This instability adversely affects desired efficacy, and it may also be a source of unpleasantness for users, for example when the instability of an agent causes changes in the color and/or odor of a composition which contains it.

Various means of stabilizing the aforementioned agents have also been considered. When an agent contains a reactive location, especially in the instance of vitamins and dihydroxyacetone, one of the means of stabilizing such an agent consists of blocking the respective site by esterification, especially by means of phosphatic, sulfated, or alkylated derivatives, for example, with said derivatives being used in lieu of the free agent. Unfortunately, the efficacy of the aforementioned derivatives is less suitable than that of the free agent.

Use of precursors of the aforementioned agents has likewise been considered, whereby precursors are allowed to interact with cutaneous enzymes after being applied to the skin and may release free agents subsequently (Consult Document EP-A-487404). Use of derivatives of this kind does not always allow rapid releasing of agents at the surface of the skin in sufficient quantities, however.

Consideration has also been given to providing an agent specifically consisting of an enzyme within a powdered composition (Consult Document JP-A-63-130514). In addition, use of these agents and especially enzymes in an immobilized form upon polymer media (Consult Document JP-A-61-207499) or within microcapsules (Consult Document JP-A-61-254244) has been considered. Unfortunately, these measures require a special series of procedures, which increase costs and preparation time for the respective compositions.

When agents are water-sensitive, another approach consists of incorporating them within an anhydrous liquid medium (Consult Document US-A-5322683). Unfortunately, this approach limits the galenic form of compositions, and it does not allow incorporation of hydrophilic agents.

Hence, the need for a composition where sensitive cosmetic and/or dermatological agents would retain all of their properties and their efficacy over the course of time continues to exist.

The Applicant has discovered in a previously unanticipated manner that a medium containing no more than 10% water, an amphiphilic oil, a C_2 - C_4 glycol, or a C_2 - C_4 ether-oxide glycol derivative, after being mixed with a primary alcohol and/or a C_5 - C_7 glycol, was capable of maintaining the activity of an agent which was sensitive to external factors and/or to water, and of preventing degradation of said agent.

One object of the present invention therefore consists of a medium, characterized by the fact that it includes no more than 10% water by weight, at least one amphiphilic oil, at least one polyol or polyol derivative selected among C_2 - C_4 glycols or C_2 - C_4 ether-oxide glycol derivatives, and mixtures thereof, and at least one solvent for oil and water, with an alcohol group, and by the fact that it does not contain surface-active agents.

Water within a medium according to the invention is preferably present according to a quantity varying from 1% to 10% by weight, in relation to the total weight of the respective composition.

A solvent with an alcohol group may specifically consist of a primary C_2 - C_8 alcohol, a C_5 - C_7 glycol, or a mixture of a primary alcohol and a C_5 - C_7 glycol.

Although a medium which is obtained according to the present invention lacks surface-active and stabilizing agents, it exists in the form of a transparent or translucent fluid which possesses suitable stability. The absence of a surface-active agent offers the advantage of rendering the respective medium less irritating.

According to the present invention, the expression "amphiphilic oil" refers to an oil which possesses affinities for water. This category may specifically include esters or ethers which contain an oxygen atom possessing affinities for water and an HLB (hydrophilic-lipophilic balance) from 6 to 12, with the HLB preferably being close to 10. In particular, it is possible to cite laureth-2 benzoate, glycereth-7 benzoate, diethylene glycol dioctanoate/diisononanoate, polyoxypropylene-15 stearyl ether, ethyl-2-hexyl malate, isopropyl adipate, a PPG-7/succinic acid copolymer, and neopentylglycol dioctanoate as amphiphilic oils which are usable according to the present invention.

It is preferable for an amphiphilic oil to be present within the medium to which the invention pertains, according to a quantity varying from 10% to 55% by weight, and, more preferably from 20% to 30% by weight in relation to the total weight of said medium.

As C_2 - C_4 glycols which are usable according to the invention, it is specifically possible to cite propylene glycol and butylene glycol. In addition, "ether-oxide derivative of a C_2 - C_4 glycol" refers to glycols obtained by condensation of two C_2 - C_4 glycols with formation of an ether bond, such as dipropylene glycol, and the derivatives of these glycols, such as ethoxydiglycol, which is sold under the name "Transcutol" by the company known as Gattefosse.

As C_5 - C_7 glycols which are usable according to the invention, it is specifically possible to cite 1,2-pentanediol, and more specifically the form which is sold with the designation "Hydrolite 5" by the company known as Dragoco.

It is possible for the primary alcohol which is to be used in a medium to which the invention pertains to consist of ethyl alcohol specifically.

A medium according to the invention may contain from 10% to 20% C_2 - C_4 glycols and/or one or more ether-oxide derivatives of a C_2 - C_4 glycol by weight, and preferably from 15% to 18% by weight in relation to the total weight of said medium.

In addition, a medium according to the invention may contain from 5% to 60% by weight, and preferably from 15% to 55% by weight of one or more primary alcohols and/or one or more C_5 - C_7 glycols. It is advantageous for the amount of C_5 - C_7 glycol to vary from 5% to 10% by weight when the respective medium contains a primary alcohol.

In an advantageous form, it is possible for the medium according to the invention to be used in a composition with topical activity which contains agents which are sensitive to external factors such as light, heat, and/or water. To a surprising extent, these agents remain stable in the composition to which the invention pertains.

An object of the present invention also consists of a composition containing an agent with topical activity which is sensitive to external factors and/or to water, as well as being characterized by the fact that it contains a medium of the previously defined type.

Agents with topical effects which are sensitive to external factors and/or to water and for which the invention may be applied may specifically consist of enzymes and agents which contain at least one hydroxyl group.

As enzymes, it is possible to cite lipases and proteases, for example. Among proteases, an example which can be cited is a protease sold under the commercial designation "Subtilisine SP 544" by the company known as Novo Nordisk and another protease sold under the commercial designation "Lysoveg" by the company known as Laboratoires Serobiologiques de Nancy.

As agents containing at least one hydroxyl group, it is possible to cite esterifiable vitamins in particular, such as retinol (Vitamin A) and its derivatives, ascorbic acid (Vitamin C) and its derivatives, as well as hydroxylated ketones, such as dihydroxyacetone.

It is advantageous for said agents to be present in a composition according to the invention, in an amount varying from 0.5% to 10% by weight, and, more specifically, from 1% to 5% by weight in relation to the total weight of the respective composition.

For a topical application, a composition according to the invention should contain a topically acceptable medium, namely a medium which is compatible with skin, and/or hair, and/or mucous membranes.

A composition according to the invention may be used for cosmetic and/or dermatological treatments for skin and/or hair, depending upon the agent which it contains.

A composition according to the invention may specifically consist of cleansing or protective compositions, treatment or care compositions for the face, the neck, the hands, or the body, artificial tanning products, or products for the hair, and especially for scalp care, as in the form of lotions which provide treatment, for example.

In the specific instance of ascorbic acid, a composition may be intended for discoloration of the skin or for treating acne, for example. The latter condition may also be treated with a composition containing retinol.

Furthermore, another object of the invention also consists of use of a composition such as the previously defined composition for discoloration of the skin, with the respective agent being ascorbic acid.

Still another object of the invention is use of the previously defined composition for preparing a dermatological salve or ointment intended for therapeutic treatment of acne, with the respective agent being ascorbic acid or retinol.

When it contains dihydroxyacetone, a composition according to the invention may constitute a tanning composition.

One of the objects of the invention also consists of use of a composition such as the previously defined one for coloring the skin, with dihydroxyacetone as an agent.

Dihydroxyacetone is preferably used in amounts varying from 1% to 8% by weight, and, more preferably from 1% to 5% by weight in relation to the total weight of a given composition.

Furthermore, another object of the invention is a tanning composition based upon dihydroxyacetone, characterized by the fact that it includes no more than 10% water by weight, at least one amphiphilic oil, at least one polyol or polylol derivative selected among C_2 - C_4 glycols, ether-oxide derivatives of a C_2 - C_4 glycol and mixtures of said derivatives, and at least one solvent for oil and water which is to contain an alcohol group.

In a manner consistent with prior art, a composition according to the invention may also contain customary additives within the fields of cosmetics or dermatology, such as preservatives, antioxidants, fragrances, filters, gelling agents, separating agents, essential oils, coloring materials, and hydrophilic or lipophilic agents other than those which have been cited heretofore.

As examples of gelling agents, it is possible to cite polysaccharides such as hydroxypropylcelluloses.

As hydrophilic agents, it is possible to use proteins or protein hydrolysates and amino acids, for example.

As lipophilic agents, it is possible to use tocopherol (Vitamin E) and its derivatives, essential fatty acids, ceramides, and essential oils, for example.

Quantities of the different ingredients of a composition according to the invention are those which are traditionally used within the respective fields.

The following examples are being provided as illustrative examples in order to allow greater comprehension of the invention. Amounts which are indicated are percentages by weight.

In all of these examples, the respective compositions were prepared in the following manner: if a gelling agent is present, cold dispersion within a solvent with an alcohol group (ethyl alcohol) has taken place with constant stirring, and different components have been added subsequently, one after another, after prior dilution of the indicated agents in water.

Example 1: Tanning fluid	
Ethyl alcohol	43.4%
Hydroxypropylcellulose	0.7%
Vitamin E	0.5%
Butylene glycol	10%
Dipropylene glycol	5%
Laureth-2 benzoate (Dermol 126,	
sold by the company known as Alzo)	12.5%
Glycereth-7 benzoate (Dermol G76,	
sold by the company known as Alzo)	7.5%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	5%
Dihydroxyacetone	5%
Fragrance	0.4%
Water	10%

The fluid which is obtained exists in the form of a transparent fluid, which is stable over the course of time and is agreeable to apply. It allows even tanning of the face and the body when it is applied daily for at least one week.

A use test was performed with a group of forty women, who applied this tanning product to their faces for ten days.

The users appreciated the transparency of the fluid and indicated that it was easy to apply, as well as being particularly cool during application to the skin. After ten days of use, they concluded that tanning had occurred more rapidly than with customary products and that the shade which had been obtained was quite uniform. 73% of the users indicated willingness to purchase this product.

Example 2: Tanning fluid	
Ethyl alcohol	33.2%
Hydroxypropylcellulose	0.7%
Vitamin E	0.5%
Butylene glycol	10%
Dipropylene glycol	7.5%
Laureth-2 benzoate (Dermol 126,	
sold by the company known as Alzo)	10%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	8%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	4.5%
1,2-pentanediol (<i>Hydrolite-5</i> , sold by the company known as <i>Dragoco</i>)	
Dihydroxyacetone	5%
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Fragrance	0.6%
Water	10%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 3: Tanning fluid	
Ethyl alcohol	53.8%
Hydroxypropylcellulose	0.5%
Vitamin E	0.5%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	20%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 4: Tanning fluid	
Ethyl alcohol	53.8%
Hydroxypropylcellulose	0.5%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	15.5%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	5%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 5: Tanning fluid	
Ethyl alcohol	37.2%
Hydroxypropylcellulose	0.1%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	30%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	5.5%
Dihydroxyacetone	7%
Fragrance	0.2%
Water	5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 6: Tanning fluid	
Ethyl alcohol	28.8%
Vitamin E	0.5%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	50%
Dihydroxyacetone	3%
Fragrance	0.2%
Water	2.5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 7: Tanning fluid	
Ethyl alcohol	54.3%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	20.5%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 8: Tanning fluid	
Ethyl alcohol	34.2%
Hydroxypropylcellulose	0.1%
Vitamin E	0.5%
Butylene glycol	10%
Dipropylene glycol	7.5%
Laureth-2 benzoate (Dermol 126,	
sold by the company known as Alzo)	5%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	12.1%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	5 %
Ethyl 2-hexyl malate	5%
Ethoxydiglycol	10%
Dihydroxyacetone	5%
Fragrance	0.6%
Water	5%

The fluid which is obtained possesses the same characteristics as the fluid indicated within Example 1.

Example 9: Anti-discoloration fluid	
Ethyl alcohol	33.5%
Hydroxypropylcellulose	0.7%
Vitamin E	0.5%
Butylene glycol	10%
Dipropylene glycol	7.5%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	10%
Laureth-2 benzoate (Dermol 126, sold by the	
company known as Alzo)	10%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	7.5%
1,2-pentanediol (Hydrolite-5, sold by the	
company known as Dragoco)	10%
Ascorbic acid	5%
Fragrance	0.3%
Water	5%

The fluid which is obtained exists in the form of a transparent and stable liquid which is agreeable to apply. Regular application allows removal of spots from the skin.

Example 10: Cleansing fluid	
Ethyl alcohol	33.8%
Hydroxypropylcellulose	0.7%
Butylene glycol	10%
Dipropylene glycol	7.5%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	10%
Laureth-2 benzoate (Dermol 126, sold by the	
company known as Alzo)	10%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	8%
1,2-pentanediol (Hydrolite-5, sold by the	
company known as Dragoco)	10%
Enzyme (Subtilisine SP 544, sold by the	
company known as Novo Nordisk)	0.1%
Water	9.9%

A transparent fluid intended for cleansing facial skin and skin on the body is obtained.

An analytical test was performed in order to determine the stability of dihydroxyacetone after storage at 45° C. during a certain period of time in terms of two compositions according to the invention (Examples 11 and 12) and two comparison compositions (Counter-examples 1 and 2). The dihydroxyacetone level was originally 5% in all of these compositions.

The following compositions were tested:

Example 11: Tanning fluid according to the inven	ition
Ethyl alcohol	59.3%
Vitamin E	0.5%
Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	10%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	10%
Example 12: Tanning fluid according to the inven	ıtion
Ethyl alcohol	54.3%
Vitamin E	0.5%

Butylene glycol	15%
Diethylene glycol dioctanoate/diisononanoate	
(Dermol 489 sold by the company known as Alzo)	15%
Polyoxypropylene-15 stearyl ether (Arlamol E,	
sold by the company known as ICI)	5%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	5%

13.55%

Counter-example 1 (comparison product): tanning gel Methyl vinyl ether/maleic anhydride copolymer, with reticulation by means of 1,9-decadiene (Stabileze 06, sold by the company known as ISP) 0.5% Amino-2-methyl-2-propanol-1 0.25% Ethyl alcohol 45% Butylene glycol 15% Diethylene glycol dioctanoate/diisononanoate (Dermol 489, sold by the company known as Alzo) 20% PEG-60 hydrogenated castor oil (Cremophor RH60, sold by the company known as BASF) 0.5% Dihydroxyacetone 5% Fragrance 0.2%

The gel indicated within Counter-example 1 is translucent, with limited flowability. It differs from compositions according to the invention on account of its higher water content.

Counter-example 2 (comparison product): tanning microemulsion

Water

Isohexadecane (Arlamol HD, sold by the company	
known as ICI)	44%
Dimethicone (Dow Corning 200 Fluid, sold by the	
company known as Dow Corning)	18.8%
PEG-8 OE/ glyceryl laurate (surface-active agent)	
mixture	21.6%
Lauric plurol (surface-active agent)	5.4%
Dihydroxyacetone	5%
Fragrance	0.2%
Water	5%

A transparent microemulsion which differs from compositions according to the invention on account of the fact that the oils which are used are not amphiphilic and on account of the presence of surface-active agents.

Comparative results for Examples 11 and 12 and for Counter-examples 1 and 2 are provided within the following table:

Number of days	Example 11	Example 12	Counter-Example	Counter-
at 45° C.	(Invention)	(Invention)	1	Example 2
30	3.9	4.8	3.7	1.9
50	4.2	4.7	1.5	2.0

With the amount of dihydroxyacetone being 5% at T0, these results clearly demonstrate that the activity of dihydroxyacetone is maintained within compositions according to the invention for longer periods than within comparative products. It can be concluded that dihydroxyacetone's stability within compositions according to the invention is distinctly superior to that which is offered by prior art.

Claims

- 1. A medium, characterized by the fact that it contains no more than 10% water by weight, at least one amphiphilic oil, at least one polyol or polyol derivative which is selected among C_2 C_4 glycols, ether-oxide derivatives of a C_2 C_4 glycol and mixtures thereof, and at least one solvent for oil and water with an alcohol group, and by the fact that said medium does not contain surface-active agents.
- 2. A medium according to Claim 1, characterized by the fact that the solvent is to be selected among primary C_2 C_8 alcohols, C_5 C_7 glycols, and mixtures thereof.
- 3. A medium according to Claims 1 or 2, characterized by the fact that it shall contain from 1% to 10% water by weight.
- 4. A medium according to any of the preceding claims, characterized by the fact that it does not contain a stabilizing agent.
- 5. A medium according to any of the preceding claims, characterized by the fact that the amphiphilic oil is to be selected among esters and ethers which contain an oxygen atom possessing affinities with water and an HLB from 6 to 12.
- 6. A medium according to any of the preceding claims, characterized by the fact that the aforementioned amphiphilic oil is to be selected from a group which includes 2-laureth benzoate, 7-glycereth benzoate, diethylene glycol dioctanoate/diisononanoate, popyoxypropylene-15 stearyl ether, 2-hexyl ethyl malate, isopropyl adipate, PPG-7-succinic acid copolymer, neopentylglycol dioctanoate, and mixtures thereof.
- 7. A medium according to any of the preceding claims, characterized by the fact that the respective C_2 C_4 glycol is to be selected among propylene glycol, butylene glycol, and mixtures thereof.
- 8. A medium according to any of the preceding claims, characterized by the fact that the ether-oxide derivative of a C_2 C_4 glycol is to be selected among dipropylene glycol, ethoxydiglycol, and mixtures thereof.
- 9. A medium according to any of the preceding claims, characterized by the fact that the primary alcohol shall be ethanol.
- 10. A medium according to any of the preceding claims, characterized by the fact that the respective C₅- C₇ glycol shall be 1,2-pentanediol.
- 11. A medium according to any of the preceding claims, characterized by the fact that an amphiphilic oil shall be present according to an amount varying from 10% to 55% by weight in relation to the total weight of said medium.
- 12. A medium according to any of the preceding claims, characterized by the fact that a polyol shall be present according to an amount varying from 10% to 20% by weight in relation to the total weight of said medium.
- 13. A medium according to any of the preceding claims, characterized by the fact that the solvent shall be present according to an amount varying from 5% to 60% by weight in relation to the total weight of said medium.

- 14. A composition containing an agent with topical action which is sensitive to external factors and/or to water, characterized by the fact that it contains a medium in accordance with any of the preceding claims.
- 15. A composition according to the preceding claim, characterized by the fact that the agent with topical action is to be selected among a group consisting of enzymes and agents which contain at least one hydroxyl group.
- 16. A composition according to the preceding claim, characterized by the fact that the agent containing at least one hydroxyl group is to be selected among a group containing esterifiable vitamins, hydroxylated ketones, and mixtures thereof.
- 17. A composition according to Claim 15 or 16, characterized by the fact that the agent containing at least one hydroxyl group is to be selected among a group consisting of retinol, ascorbic acid, dihydroxyacetone, and mixtures thereof.
- 18. A composition according to any of the claims identified as 14 to 17, characterized by the fact that it shall contain an agent with topical action, with the quantity thereof varying from 0.5% to 10% by weight in relation to the total weight of said composition.
- 19. A composition according to any of the preceding claims, characterized by the fact that it shall constitute a cosmetic and/or dermatological composition.
- 20. A composition according to any of the preceding claims, characterized by the fact that it shall include at least one lipophilic or hydrophilic additive, which is to be selected among preservatives, anti-oxidants, fragrances, filters, gelling agents, sequestering agents, essential oils, coloring materials, etc.
- 21. Use of a composition according to any of the claims identified as 14 to 20 for treating skin discoloration, with ascorbic acid as the respective agent.
- 22. Use of a composition according to any of the claims identified as 14 to 20 for improving skin lustre, with ascorbic acid as the respective agent.
- 23. Use of a composition according to any of the claims identified as 14 to 20 in order to prepare a dermatological pomade or ointment intended for therapeutic treatment of acne, with ascorbic acid and/or retinol as the respective agents.
- 24. Use of a composition according to any of the claims identified as 14 to 20 in order to color the skin, with dihydroxyacetone as the respective agent.
- 25. A tanning composition based upon dihydroxyacetone, characterized by the fact that it shall conclude no more than 10% water by weight, at least one amphiphilic oil, at least one polyol derivative selected among C_2 C_4 glycols, ether-oxide derivatives of C_2 C_4 glycols and mixtures thereof, and at least one oil solvent and water solvent containing an alcohol group.
- 26. A composition according to Claim 25, characterized by the fact that dihydroxyacetone shall be present in amounts varying from 1% to 8% by weight in relation to the total weight of said composition.